

AMENDMENT

IN THE CLAIMS:

Please amend claims 1, 2, 4, 6-10, 12, 13 and 18 and add new claims 25-40. No new matter is believed to be introduced as a result of these amendments and new claims.

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1. (Once Amended) An x-ray tube component comprising:

C1 a first powder metal component comprised of a material that is substantially non-transmissive to x-radiation; a second powder metal component, mixed with the first powder metal component in a manner so as to form a predetermined component shape; and wherein the mixture of the first powder metal component with the second powder metal component together limits the amount of x-radiation that is able to pass through the x-ray tube component to a predetermined level.

2. (Once Amended) An x-ray tube as defined in claim 1, wherein the first powder metal component material includes tungsten.

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- C2 4. (Once Amended) An x-ray tube as defined in claim 1 wherein the second powder metal component includes copper.
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6. (Once Amended) An x-ray tube as defined in claim 1, wherein the first powder metal component comprises tungsten and the second powder metal component comprises copper.

C3 7. (Once Amended) An x-ray tube as defined in claim 6, wherein the x-ray tube component comprises:

approximately 80% by weight tungsten as first powder metal component; and
approximately 20% by weight copper as the second powder metal component.

8. (Once Amended) An x-ray tube as defined in claim 1, wherein the second powder metal component includes at least one of the following: nickel, iron, cobalt, and aluminum.

9. (Once Amended) An x-ray tube as defined in claim 1, wherein the x-ray tube component comprises:

90% by weight tungsten as the first powder metal component;
2% by weight iron as the second powder metal component; and
8% by weight nickel as a third powder metal component.

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10. (Once Amended) An x-ray tube component as defined in claim 1, wherein the first powder metal component includes at least one of the following: tungsten, copper, molybdenum, tantalum, steel, bismuth, lead, and alloys of the foregoing.

C4

12. (Once Amended) An x-ray tube component as recited in claim 11, wherein the housing further comprises a bond layer that is disposed on the exterior surface of said x-ray tube housing, wherein the bond layer enhances the bond strength between said x-ray tube housing and a connected structure.

13. (Once Amended) An x-ray generating apparatus comprising:
an integral housing forming a vacuum enclosure, at least a portion of the integral housing is formed of a mixture of powder metal components that together limit the amount of x-radiation that is able to pass through the portion of the integral housing to a predetermined level;

an anode assembly having a rotating anode with a target portion, the rotating anode being disposed within the vacuum enclosure; and

a cathode assembly, disposed within the vacuum enclosure, having an electron source capable of emitting electrons that strike the target portion to generate x-rays which are released through a window formed through a side of the integral housing.

18. (Once Amended) An x-ray generating apparatus as defined in claim 13, wherein the mixture of powder metal components comprise a first powder metal material that is substantially non-transmissive to x-radiation, and a second powder metal material, mixed with the first powder metal material, so as to form the integral housing portion.

25. (New) The x-ray generating apparatus as defined in claim 13, wherein the mixture of powder metal components includes first and second powder metal components, the first powder metal component taking the form of a supporting matrix for the second powder metal component.

26. (New) The x-ray generating apparatus as defined in claim 13, wherein the mixture of powder metal components includes at least one powder metal component selected from the group consisting of: copper; nickel; iron; cobalt; and aluminum.

27. (New) The x-ray generating apparatus as defined in claim 13, wherein the mixture of powder metal components includes at least one powder metal component selected from the group consisting of: tungsten; copper; molybdenum; tantalum; steel; bismuth; lead; and alloys of each of the foregoing.

28. (New) The x-ray generating apparatus as defined in claim 13, wherein the mixture of powder metal components includes first and second powder metal components, the

first powder metal component comprising a melt component and the second powder metal component comprising a radiation shield component.

29. (New) An x-ray tube component having a predetermined shape with at least one surface and comprising:

a first powder metal component; and

a second powder metal component mixed together with the first powder metal component to form the x-ray tube component in the predetermined shape, the second powder metal component comprising a material that is substantially non-transmissive with respect to x-radiation.

30. (New) The x-ray tube component as recited in claim 29, wherein the first powder metal component takes the form of a supporting matrix for the second powder metal component.

31. (New) The x-ray tube component as recited in claim 29, wherein the first powder metal component comprises at least one material selected from the group consisting of: copper; nickel; iron; cobalt; and aluminum.

32. (New) The x-ray tube component as recited in claim 29, wherein the second powder metal component comprises at least one material selected from the group consisting of:

tungsten; copper; molybdenum; tantalum; steel; bismuth; lead; and alloys of each of the foregoing.

33. (New) The x-ray tube component as recited in claim 29, further comprising a third powder metal component mixed together with the first and second powder metal components.

34. (New) The x-ray tube component as recited in claim 33, wherein the third powder metal component substantially comprises chromium.

35. (New) The x-ray tube component as recited in claim 29, further comprising an oxidized layer disposed on at least a portion of the at least one surface of the x-ray tube component.

36. (New) The x-ray tube component as recited in claim 29, further comprising a bond layer disposed on at least a portion of the at least one surface of the x-ray tube component.

37. (New) The x-ray tube component as recited in claim 29, wherein the second powder metal component is in an amount that is in the range of about fifty percent to about ninety nine percent, by weight, of the x-ray tube component.

38. (New) The x-ray tube component as recited in claim 29, wherein the x-ray tube component comprises at least a portion of a billet.

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39. (New) The x-ray tube component as recited in claim 29, further comprising a third powder metal component mixed together with the first and second powder metal components, the first, second and third powder metal components collectively comprising heavy metal alloy.

40. (New) The x-ray tube component as recited in claim 29, wherein the second powder metal component comprises a tungsten-aluminum alloy.
